

APPENDIX B

Document Type Definition (DTD)

The following is a DTD for IMS transaction definitions according to an embodiment of the invention.

```
<?xml version="1.0" encoding="UTF-8" ?>
```

```
<!-- XMI Automatic DTD Generation -->
```

```
<!-- Metamodel: macro -->
```

```
<!-- _____ -->
```

```
<!-- _____ -->
```

```
<!-- XMI is the top-level XML element for XMI transfer text -->
```

```
<!-- _____ -->
```

```
<!ELEMENT XMI (XMI.header, XMI.content?, XMI.difference*,  
XMI.extensions*) >
```

```
<!ATTLIST XMI
```

```
    xmi.version CDATA #FIXED "1.0"
```

```
    timestamp CDATA #IMPLIED
```

```
    verified (true | false) #IMPLIED
```

```
>
```

```
<!-- _____ -->
```

```
<!-- _____ -->
```

```
<!-- XMI.header contains documentation and identifies the model, -->
```

```
<!-- metamodel, and metamodel -->
```

```
<!-- _____ -->
```

```
<!ELEMENT XMI.header (XMI.documentation?, XMI.model*, XMI.metamodel*,  
XMI.metamodel*) >
```

```
<!-- _____ -->
```

```
<!-- _____ -->
```

```
<!-- documentation for transfer data -->
```

```
<!-- _____ -->
```

```
<!ELEMENT XMI.documentation (#PCDATA | XMI.owner | XMI.contact |  
XMI.longDescription | XMI.shortDescription |  
XMI.exporter | XMI.exporterVersion |  
XMI.notice)* >
```

```
<!ELEMENT XMI.owner ANY >
```

21

```

1  <!ATTLIST XMI.model
      %XMI.link.att;
      xmi.name CDATA #REQUIRED
2      xmi.version CDATA #IMPLIED
3  >
4  <!-- _____ -->
5  <!-- XMI.metamodel identifies the metamodel(s) for the transferred
6  <!-- data -->
7  <!-- _____ -->
8  <!ELEMENT XMI.metamodel ANY >
9  <!ATTLIST XMI.metamodel
      %XMI.link.att;
      xmi.name CDATA #REQUIRED
10     xmi.version CDATA #IMPLIED
11 >
12 <!-- _____ -->
13 <!-- XMI.metamemodel identifies the metametamodel(s) for the
14 <!-- transferred data -->
15 <!-- _____ -->
16 <!ELEMENT XMI.metamemodel ANY >
17 <!ATTLIST XMI.metamemodel
      %XMI.link.att;
      xmi.name CDATA #REQUIRED
18     xmi.version CDATA #IMPLIED
19 >
20 <!-- _____ -->
21 <!-- XMI.content is the actual data being transferred -->
22 <!-- _____ -->
23 <!ELEMENT XMI.content ANY >
24 <!-- _____ -->
25 <!-- XMI.extensions contains data to transfer that does not conform
26 <!-- to the metamodel(s) in the header -->
27 <!-- _____ -->
28 <!ELEMENT XMI.extensions ANY >

```

```

1  <!ATTLIST XMI.extensions
    xmi.extender CDATA #REQUIRED
2  >
3  <!-- _____ -->
4  <!-- extension contains information related to a specific model -->
5  <!-- construct that is not defined in the metamodel(s) in the header -->
6  <!-- _____ -->
7  <!ELEMENT XMI.extension ANY >
8  <!ATTLIST XMI.extension
    %XMI.element.att;
    %XMI.link.att;
    xmi.extender CDATA #REQUIRED
    xmi.extenderID CDATA #REQUIRED
9  >
10 <!-- _____ -->
11 <!-- XMI.difference holds XML elements representing differences to a -->
12 <!-- base model -->
13 <!-- _____ -->
14 <!ELEMENT XMI.difference (XMI.difference | XMI.delete | XMI.add |
    XMI.replace)* >
15 <!ATTLIST XMI.difference
    %XMI.element.att;
    %XMI.link.att;
16 >
17 <!-- _____ -->
18 <!-- XMI.delete represents a deletion from a base model -->
19 <!-- _____ -->
20 <!ELEMENT XMI.delete EMPTY >
21 <!ATTLIST XMI.delete
    %XMI.element.att;
    %XMI.link.att;
    >
    <!-- _____ -->
    <!-- _____ -->
    <!-- XMI.add represents an addition to a base model -->

```

```

1  <!-- _____ -->
2  <!ELEMENT XMI.add ANY >
3  <!ATTLIST XMI.add
4      %XMI.element.att;
5      %XMI.link.att;
6      xmi.position CDATA "-1"
7  >
8
9  <!-- _____ -->
10 <!-- _____ -->
11 <!-- XMI.replace represents the replacement of a model construct
12 <!-- with another model construct in a base model
13 <!-- _____ -->
14
15 <!ELEMENT XMI.replace ANY >
16 <!ATTLIST XMI.replace
17     %XMI.element.att;
18     %XMI.link.att;
19     xmi.position CDATA "-1"
20 >
21
22 <!-- _____ -->
23 <!-- _____ -->
24 <!-- XMI.reference may be used to refer to data types not defined in
25 <!-- the metamodel
26 <!-- _____ -->
27
28 <!ELEMENT XMI.reference ANY >
29 <!ATTLIST XMI.reference
30     %XMI.link.att;
31 >
32
33 <!-- _____ -->
34 <!-- _____ -->
35 <!-- This section contains the declaration of XML elements
36 <!-- representing data types
37 <!-- _____ -->
38
39 <!ELEMENT XMI.TypeDefinitions ANY >
40
41 <!ELEMENT XMI.field ANY >
42
43 <!ELEMENT XMI.seqItem ANY >
44
45 <!ELEMENT XMI.octetStream (#PCDATA) >

```

```

1  <!ELEMENT XMI.unionDiscrim ANY >
2  <!ELEMENT XMI.enum EMPTY >
3  <!ATTLIST XMI.enum
4      xmi.value CDATA #REQUIRED
5  >
6  <!ELEMENT XMI.any ANY >
7  <!ATTLIST XMI.any
8      %XMI.link.att;
9      xmi.type CDATA #IMPLIED
10     xmi.name CDATA #IMPLIED
11 >
12 <!ELEMENT XMI.CorbaTypeCode (XMI.CorbaTcAlias | XMI.CorbaTcStruct |
13     XMI.CorbaTcSequence | XMI.CorbaTcArray |
14     XMI.CorbaTcEnum | XMI.CorbaTcUnion |
15     XMI.CorbaTcExcept | XMI.CorbaTcString |
16     XMI.CorbaTcWstring | XMI.CorbaTcShort |
17     XMI.CorbaTcLong | XMI.CorbaTcUshort |
18     XMI.CorbaTcUlong | XMI.CorbaTcFloat |
19     XMI.CorbaTcDouble | XMI.CorbaTcBoolean |
20     XMI.CorbaTcChar | XMI.CorbaTcWchar |
21     XMI.CorbaTcOctet | XMI.CorbaTcAny |
22     XMI.CorbaTcTypeCode | XMI.CorbaTcPrincipal |
23     XMI.CorbaTcNull | XMI.CorbaTcVoid |
24     XMI.CorbaTcLongLong |
25     XMI.CorbaTcLongDouble) >
26 <!ATTLIST XMI.CorbaTypeCode
27     %XMI.element.att;
28 >
29 <!ELEMENT XMI.CorbaTcAlias (XMI.CorbaTypeCode) >
30 <!ATTLIST XMI.CorbaTcAlias
31     xmi.tcName CDATA #REQUIRED
32     xmi.tcId CDATA #IMPLIED
33 >
34 <!ELEMENT XMI.CorbaTcStruct (XMI.CorbaTcField)* >
35 <!ATTLIST XMI.CorbaTcStruct
36     xmi.tcName CDATA #REQUIRED
37     xmi.tcId CDATA #IMPLIED
38 >
39 <!ELEMENT XMI.CorbaTcField (XMI.CorbaTypeCode) >

```

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1 <!ELEMENT XMI.CorbaTcExcept (XMI.CorbaTcField)* >
2 <!ATTLIST XMI.CorbaTcExcept
3 xmi.tcName CDATA #REQUIRED
4 xmi.tcId CDATA #IMPLIED
5 >
6 <!ELEMENT XMI.CorbaTcString EMPTY >
7 <!ATTLIST XMI.CorbaTcString
8 xmi.tcLength CDATA #REQUIRED
9 >
10 <!ELEMENT XMI.CorbaTcWstring EMPTY >
11 <!ATTLIST XMI.CorbaTcWstring
12 xmi.tcLength CDATA #REQUIRED
13 >
14 <!ELEMENT XMI.CorbaTcFixed EMPTY >
15 <!ATTLIST XMI.CorbaTcFixed
16 xmi.tcDigits CDATA #REQUIRED
17 xmi.tcScale CDATA #REQUIRED
18 >
19 <!ELEMENT XMI.CorbaTcShort EMPTY >
20 <!ELEMENT XMI.CorbaTcLong EMPTY >
21 <!ELEMENT XMI.CorbaTcUshort EMPTY >
<!ELEMENT XMI.CorbaTcUlong EMPTY >
<!ELEMENT XMI.CorbaTcFloat EMPTY >
<!ELEMENT XMI.CorbaTcDouble EMPTY >
<!ELEMENT XMI.CorbaTcBoolean EMPTY >
<!ELEMENT XMI.CorbaTcChar EMPTY >
<!ELEMENT XMI.CorbaTcWchar EMPTY >
<!ELEMENT XMI.CorbaTcOctet EMPTY >
<!ELEMENT XMI.CorbaTcAny EMPTY >
<!ELEMENT XMI.CorbaTcTypeCode EMPTY >

1 <!ELEMENT TransactionControlMacro.isDCLogWriteAhead EMPTY >
2 <!ATTLIST TransactionControlMacro.isDCLogWriteAhead
xmi.value (False | True) #REQUIRED
3 >
4 <!ELEMENT TransactionControlMacro.toUpperCase EMPTY >
5 <!ATTLIST TransactionControlMacro.toUpperCase
xmi.value (False | True) #REQUIRED
6 >
7 <!ELEMENT TransactionControlMacro.EditRoutine (#PCDATA |
XMI.reference)* >
8 <!ELEMENT TransactionControlMacro.isFPath EMPTY >
9 <!ATTLIST TransactionControlMacro.isFPath
xmi.value (False | True) #REQUIRED
10 >
11 <!ELEMENT TransactionControlMacro.FPathBufferSize (#PCDATA |
XMI.reference)* >
12 <!ELEMENT TransactionControlMacro.isInquiry EMPTY >
13 <!ATTLIST TransactionControlMacro.isInquiry
xmi.value (False | True) #REQUIRED
14 >
15 <!ELEMENT TransactionControlMacro.isRecover EMPTY >
16 <!ATTLIST TransactionControlMacro.isRecover
xmi.value (False | True) #REQUIRED
17 >
18 <!ELEMENT TransactionControlMacro.MaxRegions (#PCDATA |
XMI.reference)* >
19 <!ELEMENT TransactionControlMacro.Mode EMPTY >
20 <!ATTLIST TransactionControlMacro.Mode
xmi.value (MultipleMessage | SingleMessage) #REQUIRED
21 >
22 <!ELEMENT TransactionControlMacro.MessageType EMPTY >
23 <!ATTLIST TransactionControlMacro.MessageType
xmi.value (MultipleSegment | SingleSegment) #REQUIRED
24 >
25 <!ELEMENT TransactionControlMacro.MessageIsResponse EMPTY >

```

1  <!ATTLIST TransactionControlMacro.MessageIsResponse
2  >
3  <!ELEMENT TransactionControlMacro.MessageClass (#PCDATA |
4  XMI.reference)* >
5  <!ELEMENT TransactionControlMacro.ParallelLimit (#PCDATA |
6  XMI.reference)* >
7  <!ELEMENT TransactionControlMacro.ProcessLimitCount (#PCDATA |
8  XMI.reference)* >
9  <!ELEMENT TransactionControlMacro.ProcessLimitSeconds (#PCDATA |
10 XMI.reference)* >
11 <!ELEMENT TransactionControlMacro.PriorityNormal (#PCDATA |
12 XMI.reference)* >
13 <!ELEMENT TransactionControlMacro.PriorityLimit (#PCDATA |
14 XMI.reference)* >
15 <!ELEMENT TransactionControlMacro.PriorityLimitCount (#PCDATA |
16 XMI.reference)* >
17 <!ELEMENT TransactionControlMacro.isRouting EMPTY >
18 <!ATTLIST TransactionControlMacro.isRouting
19 xmi.value ( False | True ) #REQUIRED
20 >
21 <!ELEMENT TransactionControlMacro.ScheduleOption (#PCDATA |
XMI.reference)* >
<!ELEMENT TransactionControlMacro.SegmentNumber (#PCDATA |
XMI.reference)* >
<!ELEMENT TransactionControlMacro.SegmentSize (#PCDATA |
XMI.reference)* >
<!ELEMENT TransactionControlMacro.isSerial EMPTY >
<!ATTLIST TransactionControlMacro.isSerial
xmi.value ( False | True ) #REQUIRED
>
<!ELEMENT TransactionControlMacro.SPASize (#PCDATA | XMI.reference)* >

```

[illegible]

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1 TransactionControlMacro.SysIDLocal?,
2 TransactionControlMacro.isWaitForInput?,
3 XMI.extension*,
4 TransactionControlMacro.APPLCTN?)? >
5 <!ATTLIST TransactionControlMacro
6 %XMI.element.att;
7 %XMI.link.att;
8 >
9
10 <!ELEMENT macro ((ApplicationControlMacro | TransactionControlMacro)*) >
11 <!ATTLIST macro
12 %XMI.element.att;
13 %XMI.link.att;
14 >
15
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